the Royal Society in 1884, and was made, two years later, a graduate of the Royal University of Dublin. His official position further led to his selection as president of the Institute of Chemistry in 1888. He was one of the original members of the Institute, and took much interest in its operations. He was made a Companion of the Bath in 1889.

Dr. Bell enjoyed the respect and esteem of many successive Boards of Inland Revenue, who found in him a shrewd and astute adviser of ripened judgment and large experience, eminently cautious and sound. His *bonhomie* and geniality, his strong common sense and tactful sympathy, his fair-mindedness and obvious impartiality rendered him an admirable agent in the conduct of the occasionally complicated and difficult adjustments of the apparently conflicting interests of the "Trade" and the Revenue, which the head of the laboratory is now and again called upon to determine. He was loyally served by his staff, who entertained warm feelings of regard and affection for him. Many of them testified to their appreciation of his many good qualities by their presence at his funeral on Saturday last at Ewell.

T. E. T.

NOTES.

The sixteenth James Forrest lecture of the Institution of Civil Engineers will be delivered at the institution on Monday, April 27, by Prof. Henry Louis, who has selected for his subject "Unsolved Problems in Metal Mining."

The Geological Society of London is taking a poll of all the fellows resident in the United Kingdom to ascertain whether a majority is in favour of admitting women to the society, and, if so, whether as fellows or as associates.

Dr. W. N. Shaw, F.R.S., and Dr. T. H. Warren, Vice-Chancellor of the University of Oxford, have been elected members of the Athenæum Club under the provisions of the rule of the club which empowers the annual election by the committee of three persons "of distinguished eminence in science, literature, the arts, or for public services."

Dr. Henri Deslandres, who since 1897 has been assistant director of the observatory at Meudon, has been appointed director to succeed the late Dr. Janssen.

Dr. J. N. Langley, F.R.S., professor of physiology in the University of Cambridge, has been elected a foreign member of the Royal Danish Scientific Society.

The third International Congress of Philosophy will be held at Heidelberg from August 31 to September 5. Prof. Windelberg is to be president, and Dr. Elsenhaus Plock, of Heidelberg, is acting as secretary.

The annual dinner of the Institution of Mining and Metallurgy will be held at the Hotel Cecil on Friday, May 8. The president, Mr. A. James, will preside, and many distinguished guests have already accepted invitations to be present.

We learn from the *British Medical Journal* that the Town Council of West Ham has passed a resolution authorising the placing of a bronze tablet on the house in Upton Lane, Forest Gate, now St. Peter's Vicarage, where Lord Lister was born.

The sixth International Congress of Psychology will be held at Geneva from August 31 to September 4, 1909. Prof. E. Claparède, professor of physiological psychology in the University of Geneva, is the general secretary of the congress, and may be addressed at Champel, 11, Geneva.

A new Polar expedition is being equipped, under the auspices of the Russian Ministry of Marine, with the object of discovering a north-east passage between the Atlantic and Pacific Oceans, and thereby accelerating naval communication between Western and Far Eastern Russia.

A correspondent sends us a page from "Wind und Wetter," by Prof. E. Lommel (Munich: R. Oldenbourg, 1873), containing a description of the dark cloud which covered Europe and a part of Asia in 1873 (see Nature, March 5, p. 417, and March 26, p. 493).

The body of Emanuel Swedenborg, who died in 1772 and was buried in the Swedish Church, Prince's Square, Ratcliff Highway, was removed on Tuesday from its place of sepulture and conveyed to Dartmouth, where it was placed on board the Swedish cruiser *Fylgia* for conveyance to Sweden.

A general meeting of the American Philosophical Society will be held at Philadelphia on April 23–25. The preliminary programme, a copy of which has reached us, shows that thirty-six papers on important scientific subjects will be brought before the meeting by leading men of science in the United States.

The Back bequest for 1908 has been awarded by the Royal Geographical Society to Lieutenant George Mulock, R.N., on account of the survey work which he did on the National Antarctic Expedition, and the map in six sheets which he prepared after the expedition returned.

A message from Stockholm states that it is the intention of the Swedish Government to ask the Riksdag to make a grant for a scientific expedition to Spitsbergen in the coming summer for geological and geographical research. Prof. Gerard de Geer, the Rector of the University of Stockholm, will be the leader of the expedition.

It is proposed to hold a conference of meteorologists representative of the United Kingdom and of the British colonies and dependencies in the course of the summer in Canada on the invitation of the Royal Society of Canada. The meeting was originally fixed for the last week in May. We are now informed by Mr. R. F. Stupart, director of he Canadian Meteorological Service, that it has been postponed, and is to be held in Quebec in the last week of July, immediately after the celebration of the tercentenary of Champlain's landing.

An adult living specimen of *Lepidosiren paradoxa*—the South American lung-fish—reached the natural history department of Glasgow University some months ago, and has remained in a healthy condition. To this—the first living specimen which has ever reached the Old World—there have just been added eight others obtained by Mr. W. E. Agar on his recent expedition. It is hoped that in time it may be found possible to induce them to breed in captivity.

The summer meeting of the American Association for the Advancement of Science will be held at Dartmouth College, Hanover, N.H., during the week beginning June 29. A committee, under the chairmanship of Prof. R. Fletcher, has been appointed to make the necessary arrangements. An invitation has been received from the president of the Blue Mountain Forest Association for members of the association to visit the Blue Mountain Forest, otherwise known as the Corbin Blue Mountain Park or Preserve, covering about 40,000 acres, where the celebrated herds of buffalo, deer, mountain goats, boars, &c., may be seen.

Agricultural science in America has lost a promising writer and teacher by the death, in his forty-second year, of Prof. Willis G. Johnson. He was formerly an instructor in the University of Illinois, and was engaged in special investigations for the natural history laboratory of that State. Later he became State entomologist of Maryland, and organised the Maryland State Horticulture Department. Of late years he had written largely on fruit-tree pests and kindred subjects, and had edited the *American Agriculturist.*

With reference to his article in Nature of March 26 on the proposed alterations in the calendar, the author writes:—"In p. 489, col. 2, line 13, for 'each 132nd year' read 'each 128th year.' Dropping a leap year at the end of each latter period would be equivalent to having in that time 97 common years and 31 leap years, or 46,751 days in all, differing from 128 tropical years by only 0·00160 of a day. This is much more accurate than the Gregorian rule; and, if the latter is a little more easy to remember, that is of little advantage for what can come at most once in a lifetime."

In a letter to the Paris Academy of Sciences, Prince Roland Bonaparte announces his resolution to place the sum of 100,000 francs (3960*l.*) at the disposal of the academy for the encouragement of scientific research. This sum is not to be treated as capital, but is to be used freely in the form of annuities, not as rewards for work done, but to enable competent workers, who have already proved their capability, to carry out new researches which otherwise they would be unable to prosecute. In his letter to the academy—which appears in No. 9 of the *Comptes rendus* (March 2)—the Prince expresses the hope that his example may be followed to such an extent that a permanent fund, devoted to this end, may be established.

The following are among the lecture arrangements at the Royal Institution after Easter:—Mr. Gerald Stoney, two lectures on the development of the modern turbine and its application; Prof. F. T. Trouton, two lectures on (1) why light is believed to be a vibration, (2) what it is which vibrates; Prof. W. Stirling, two lectures on animal heat and allied phenomena; Mr. W. Bateson, three lectures on Mendelian heredity; Dr. A. Scott, three lectures on the chemistry of photography; and Mr. G. F. Scott Elliot, two lectures on Chile and the Chilians. The Friday evening meetings will be resumed on May 1, when Prof. J. Larmor will deliver a discourse on the scientific work of Lord Kelvin. Succeeding discourses will probably be given by Dr. J. Y. Buchanan, Dr. H. T. Bulstrode, Prof. J. C. Kapteyn, of the University of Gröningen, and Sir James Dewar.

A Reuter telegram states that Captain Ejnar Mikkelsen, who jointly commanded the Anglo-American Polar Expedition, returned from Alaska on April 2. Captain Mikkelsen started from Flaxman Island on October 16 and journeyed along the northern shore of Alaska, proceeding thence along the Yukon River towards Fort Gibson. The expedition traced the continental shelf in Beaufort Sea. Information was obtained concerning ocean currents which will be useful when Captain Mikkelsen makes another attempt to reach the unknown continent. Beyond the continental shelf there is water of great depth, demonstrating that Beaufort Sea is not a shallow basin, as has been supposed. The journey north was made along the 149th meridian, and soundings were taken occasionally. At a distance of sixty-four miles from the land it was impossible to touch bottom with a 320-fathom line. Mr. Ernest de Koven Leffingwell, the expedition's geologist, has remained at Flaxman Island to carry on scientific work.

In Nature of February 13 (p. 345) Dr. T. J. J. See gave a quotation from Strabo suggesting that Mochus of Sidon was the originator of the theory of atoms. Dr. Dreyer pointed out, however, in the following issue (p. 368) that the so-called book of Mochus is a literary forgery. Dr. See now writes to state that, though this is the case, it does not justify the inference that Mochus himself was not a real authority of weight. In reply, Dr. Dreyer asks why should it be necessary to accept the existence of Mochus as a historical fact, simply because Posidonius was taken in by the forgery? It is known from other evidence that his mind was not very critically inclined. The book of Mochus is only one of a number of apocryphal writings about Demokritus, most of which pretend to have been written by himself, and describe his skill as a sorcerer and magician. See Zeller, "Philosophie der Griechen," i., p. 842 (5th ed.), and Susemihl, "Geschichte der griechischen Litteratur in der Alexandrinerzeit," i., p. 483. Zeller points out that the roots of the philosophical doctrines of Leukippus and Demokritus are so clearly distinguishable in the earlier Greek philosophy that it is out of the question to deduce them from Eastern sources.

The report of the Royal Scottish Museum for 1907 records a marked increase in the number of visitors, the total exceeding that for the previous year by 92,000. Although this increase may be partially accounted for by an extension of the hours during which the museum is open, it apparently indicates an increased interest in the institution on the part of the public. An unsatisfactory feature is the presence of a bonded whiskey store within less than a dozen feet from part of the west wing of the museum.

According to the recently issued report, the Royal Zoological Society of Ireland enjoyed an unusually good season during 1907 in the matter of receipts, the gate-money showing an increase of nearly 1500*l.* over that of the preceding year. This satisfactory state of affairs is attributed in great part to the recent Dublin exhibition, aided, no doubt, by the improved attractions of the gardens themselves. On the other hand, the list of paying members shows a serious diminution. The report is illustrated by photographs of the new seal-pond and of several interesting animals. Lion-breeding continues to be carried on successfully and profitably. As the collection includes lions from both West and East Africa, as well as one from Persia, it would be interesting if the authorities would afford information as to the characteristics of these local forms.

A short editorial note in the January number of the *Indian Forester* refers to the very important subject of forests and water supply, but no data from Indian territories are quoted. The extent to which camphor has been planted in eastern Asia, India, Africa, and the United States is summarised in an article on the subject, and the methods of producing camphor synthetically are indicated. A reprinted article by Mr. A. M. Smith discussing the correlation between the moon's phase and the period of felling bamboos bears out the view that the phenomena which have led to the belief are connected with the amount of water in the culms; the amount varies greatly with transpiration and with the conditions of light.

Miss E. M. Farr has compiled a catalogue of the flora of the Canadian Rocky Mountains and the Selkirk Range that is published as vol. iii., No. 1, of the Contributions from the Botanical Laboratory of the University of Pennsylvania. Of conifers, *Pinus Murrayana* and *Picea Engelmanni* are dominant in the Rockies; *Larix Lyallii* is a conspicuous tree at high elevations, and *Tsuga Mertensiana* is another characteristic Alpine tree occurring in the west of the region. Among flowering plants, the grasses, sedges, Cruciferæ, Rosaceæ, and Compositæ are the largest orders. Numerous interesting Alpine plants are found, as *Erythronium grandiflorum*, known as the glacier lily, *Aquilegia formosa, Anemone Drummondii*, various saxifrages, *Parnassia Kotzebuei*, *Lutkea pectinata*, and *Vaccinium myrtilloides*. The plants growing on Sulphur Mountain, so-called because of the hot sulphur springs, include *Primula Maccalliana, Saxifraga caespitosa, Draba nivalis*, and *Hutchinsia calycina*.

A SEMI-POPULAR account of light-emitting plants, by Dr. C. Müller, is published in the February number of *Himmel und Erde*. In 1815 Heinrich recorded the observation that light is evolved by the wood of certain trees, and later John Heller rightly ascribed the phenomenon to fungi. Hartig identified one mycelium as that of *Agaricus melleus*, and more recently Molisch showed that the mycelium of other fungi produce the same effect. The fruiting bodies of *Agaricus Gardneri*, *A. igneus*, and *A. olearius* emit light, also the Australian fungi *Panus incandescens* and *Pleurotus canescens*. The light observed in connection with dead animal matter, attributable to bacteria, is due in certain cases to the presence of *Bacterium phosphoreum*, and it is peculiar that this organism only exists at temperatures below 30° C.; other bacteria produce the luminous effect in connection with marine fishes and animals. The emission of light at sea has been variously attributed to bacteria, Peridineæ, and Pyrocisteæ. A distinctly novel idea of utilising light-emitting bacteria to provide a lamp was devised by Dubois and Molisch.

WE have received from the president of the International Aeronautical Committee a summary of the places at which scientific kite and balloon ascents were made in the months September–December, 1907, in Europe, the United States, and at Helwan (Egypt). Heights of 20,000 metres and upwards were reached by registering balloons at Uccle, Brussels (25,990 metres on September 5), Strassburg, and Pyrton Hill (Oxon). The meteorological results are not stated in the summary.

THE Deutsche Seewarte has published the results of meteorological observations for 1906 at the stations under its control, consisting of ten stations of the second order, fifty-six storm-warning stations on the coasts of Germany and hourly readings at four normal observatories. These results have been published in practically the same form for twenty-nine years, and owing to the great care bestowed upon all details connected with the service, the volume is one of the most valuable annual contributions to the meteorology of Europe.

PART iii. of the year-book of the Meteorological Observatory of Agram contains the rainfall observations made in Croatia and Slavonia in the years 1903–6. In the last year there were 121 observing stations; the data form an important contribution to the climatology of those parts, the tables are worked out in great detail, and the precipitation is particularised by the usual international symbols. We note, however, that, contrary to the method obtaining in this country, the values are entered to the day of measurement instead of to the previous day.

THE usual annual summary of the climatology of the past year, based on observations made at Juvisy, appears in the February number of the *Bulletin de la Société astronomique de France*. It is pointed out, in discussing the monthly temperatures, that only on five occasions since the commencement of the nineteenth century has the mean temperature for the month of July been lower than it was in 1907. The relation between sun-spot activity and terrestrial temperature is discussed, and it is shown that from 1879 until 1897 the annual temperature curve followed the sun-spot curve, with a maximum in 1893. The parallelism was not continued, however, during the period 1897 to 1900, but in 1901–2 there was a temperature minimum corresponding to that of sun-spots. The sun-spot maximum of 1905 was not accompanied, in these latitudes, by a thermic maximum, but it is suggested the excessive rain of that year, with its resulting lowering of temperature, was occasioned by the excessive evaporation in tropical regions.

WE have received from the Danish Meteorological Institute its report on the state of the ice in the Arctic seas for 1907. The report is in its usual form.

THE Bulletin of the American Geographical Society for January contains an article by Prof. R. De C. Ward on some problems of the tropics. Prof. Ward emphasises the bounty of nature in providing all the necessaries of life in tropical latitudes, and the tendency for natives of such climates to make no attempts to attain higher civilisation. None of the energetic and enterprising nations of the world has developed under the easy conditions of life in the tropics. In considering the labour problem, the marked social gulf which is certain to ensue if white men attempt to develop tropical countries by aid of indolent natives is discussed. The white residents constitute a caste, and tend to become despotic, while the country is governed on the standards of the temperate zone. Reference is made to the tendency of Europeans to become enervated in a tropical climate, and the problem of tropical government is illustrated by the example of British India. After briefly discussing the seats of primitive civilisation, Prof. Ward directs attention to the migratory movements in history from colder to warmer climates, mentioning the descent of the barbarous tribes of the Himalayas into India, and the invasions of Greece and Rome from the north.

AN account of the earthquake of January 2, 1908, by Mr. Maxwell Hall, is published in the Jamaica weather report. The principal origin of this shock lay in the western part of the island, near Ipswich and Appleton. Rocks were thrown down in a railway cutting between these towns; many houses suffered damage in the district between Falmouth and Montego Bay; at Black River it is said that goods on shelves and in windows of shops on the south side of the High Street were thrown into the street, but those on the north side were thrown inwards. At Chapelton, Mr. Maxwell Hall reports that undulations of the ground could be seen as well as felt; this observation is interesting, as the shock was not severe, no damage was caused, and the violence, as defined by Mr. Hall, corresponds to about the fifth degree of the Mercalli scale.

IN an article in a Stuttgart newspaper, the *Deutsches Volksblatt*, Mr. Schips endeavours to apply recent chemical theories towards elucidating the origin and formation of the diamond from quartz-bearing rocks. The diamond, he points out, is always associated with silicates, and one of the minerals with radium emanation is always present. He concludes, therefore, that the diamond has been formed by the influence of the emanation on silicon.

In *Concrete and Constructional Engineering* for March Colonel J. Winn summarises recent progress in the development of reinforced concrete in Great Britain. During the past year steady advance has been made, and the decision to build the new General Post Office extensions and various small post offices of reinforced concrete will have a far-reaching effect. Another interesting article in the same issue, by Mr. W. R. Crane, deals with the use of concrete and reinforced concrete in mines. Details are given of concrete linings at several shafts in the United States. Other articles dealing with reinforced concrete in reservoir, aqueduct, and conduit construction, with a ten-storey reinforced concrete building in Pittsburg, with reinforced concrete bridges in Italy, sea defences in Holland, and leading jetty on the Manchester Ship Canal, illustrate in a striking manner the variety and number of the structures which are being executed in this material.

Two interesting papers were read before the Institution of Engineers and Shipbuilders in Scotland on March 17. Mr. H. A. Mavor discussed the electric propulsion of ships, giving a comparison of the results to be obtained on a ship of large size driven direct by steam turbines with what can be done by the application of electric gear. The ship, details of which are worked out, had a total of 17,000 horse-power delivered to the three propellers, and a speed of 20¾ knots. The propellers were 8 feet 1½ inches in diameter, and the speed of revolution was 377 per minute. The maximum probable efficiency of these propellers is calculated to be 62 per cent. An electric equipment would, it is shown, permit of the use of propellers of about 14 feet diameter at 140 revolutions per minute, and an efficiency not less than 70 per cent.—an improvement more than sufficient to cover the loss in the electric motors. In the second paper Mr. W. H. Hatfield traced the evolution of malleable cast iron, and discussed its present position in the metallurgical world. He takes exception to the statement made in the report on the nomenclature of iron and steel that malleable cast iron should not be regarded as a variety of cast iron, inasmuch as it does not exhibit the extreme brittleness that characterises cast iron. He considers that it should properly be classed as cast iron. The nomenclature is, however, a matter of slight moment. The tests given by the author show that malleable cast iron can be produced giving a tensile strength of twenty-three tons per square inch with an elongation of 19 per cent., a reduction of area of 20·6 per cent., and a bending angle of 180°, results which are as good as those given by many samples of wrought iron. In structure, these castings are very similar to wrought iron.

In a note reprinted from the *Atti* of the Venetian Institution (Venice: C. Ferrari, 1908), Dr. U. Cisotti applies elliptic functions to the problem of efflux of a liquid from an opening containing an internal mouthpiece, a particular case of two-dimensional discontinuous motion. The paper forms the sequel to one in the *Rendiconti del Circolo matematico di Palermo*, xxv. (1908), on discontinuous motion in general.

The recently established Italian bi-monthly *Scienza pratica* contains a paper by Mr. Lorenzo d'Adda on the substitution of cement for steel in the armour of battleships. The idea was suggested to the writer by the way the Russian shells bounded off the batteries of the Japanese in the siege of Port Arthur without producing any great damage. Among the advantages suggested are a considerable saving of weight and cost; moreover, the author points out that efficient adhesion can be secured between the cement and iron owing to the similarity of their coefficients of expansion. Other papers are an illustrated obituary notice of the late Emilio Rossetti, late professor of physics at Buenos Ayres, who was also a pioneer of engineering in the Argentine Republic, and papers on the steam turbine and the trans-Apennine canal. A considerable collection of science abstracts, mainly dealing with engineering, is another important feature of the new journal.

Prof. Gruner, of Bern, has written a small pamphlet dealing with "The World of the Infinitely Small" at the instance of the Keplerbund of Godesberg, a society which aims at the spreading of a knowledge of science amongst the people. The author has succeeded in presenting his subject in a most fascinating manner. He approaches the infinitely small by a series of steps, one of which deals with ultra-microscopic vision, and may be mentioned as illustrating the author's method. The colour of ruby glass is due, he shows, to the presence in it of minute particles of gold too small to be seen with a microscope, under which the glass looks a uniform material. When, however, the glass is examined by the ultra-microscope the gold particles appear as points of light on a dark background like stars in the sky. What, he asks, would be the appearance of these particles if we could bring to bear on them a power which exceeded that of the ultra-microscope as much as the latter does that of the ordinary microscope?

The December (1907) number of *Terrestrial Magnetism and Atmospheric Electricity* contains an article by van Everdingen on the life and work of the late Dr. M. Snellen, director of the Royal Meteorological Institute of Holland. It deals mainly with the scientific and organising work of Dr. Snellen. Apart, however, from the character and importance of the scientific work in which Dr. Snellen was engaged, and which secured him many friends throughout the scientific world, his perfect mastery of the English tongue, his genial character, and his fund of anecdote made him a most welcome visitor to these shores, and increased the number of his admirers. We are glad to add our tribute of respect to that of the Dutch Meteorological Institute.

In the Bulletin of the U.S. Bureau of Standards for January, Messrs. W. A. Noyes and H. C. P. Weber give an account of their re-determination of the atomic weight of chlorine. The method consists in weighing the hydrogen absorbed in palladium and the chlorine in the form of potassium chloroplatinate. The hydrogen, on being passed over the heated chloroplatinate, combines with the chlorine to form hydrochloric acid, which is condensed and weighed. The mean result is 35·457, silver being 107·88. These values differ slightly from the 35·467 and 107·91 found recently by Prof. H. B. Dixon and Mr. E. C. Edgar by the same method.

According to the February number of the Journal of the Röntgen Society, the committee of the society, which has under consideration the establishment of a standard unit of radio-activity, has made an interim report in which it recommends that 1 milligram of pure radium bromide be regarded as the standard, and that the ionisation produced by the γ rays from it, after passing through 1 centimetre of lead, be taken as a measure of the unit of radio-activity. There are, however, certain difficulties in the adoption of these suggestions which the committee has still under consideration, and will deal with in a future report.

The Cambridge University Press has issued a fourth edition of "Petrology for Students: an Introduction to the

Study of Rocks under the Microscope," by Mr. Alfred Harker, F.R.S. The book has been revised, new figures have been added, and a few old ones have been withdrawn.

The U.S. Department of Agriculture has issued, at the request of librarians and others interested in entomology, a complete list of the publications of the Bureau of Entomology and those of the Department of Agriculture in general bearing on the same subject, and published by members of the Bureau or under its auspices. The list has been compiled by the librarian, Miss Mabel Colcord.

A second edition of "An Elementary Course of Practical Zoology," by the late Prof. T. Jeffery Parker and Prof. W. N. Parker, has been published by Messrs. Macmillan and Co., Ltd. The first edition was reviewed at length in the issue of Nature for April 12, 1900 (vol. lxi., p. 559). In the present edition some parts have been slightly extended, and various modifications made throughout; in addition, short accounts have been introduced of Monocystis, Nereis, and Obelia, and several new figures added.

The Carnegie Institution of Washington has published an "Index of Economic Material in Documents of the States of the United States: New York, 1789–1904." The index has been compiled by Mr. A. R. Hasse, of the New York Public Library, for the department of economics and sociology of the institution. The index runs to 553 large pages, and deals only with the printed reports of administrative officers, legislative committees, and special commissions of the States, and with governors' messages for the period since 1789.

OUR ASTRONOMICAL COLUMN.

Comet 1907*d*.—No. 4234 of the *Astronomische Nachrichten* (p. 159, February 22) contains Herr Kritzinger's continuation of his ephemeris for Daniel's comet. At present the calculated magnitude of this object is about 10·8, and the comet is situated about 2° north of μ Virginis.

Observatory Map of the Moon.—From Mr. Porthouse, of 6 Bates Street, Birch Lane, Longsight, Manchester, we have received a copy of his recently published map of the moon. This map is printed on a circle of 12 inches diameter, the different formations being shown very clearly in outline. At the side of the sheet is a printed list of the formations, with reference numbers and the diameters according to Neison. The map can be read easily in the dim light of the observatory, and can be obtained from the publisher for eightpence, post free.

The Recent Maximum of Mira Ceti.—From forty-one observations of Mira, made with an 8-inch telescope, a pair of field-glasses, and the naked eye, and extending from September 8, 1907, to January 29, M. Félix de Roy found that the maximum brightness occurred on November 1, 1907, with a magnitude of 3·41. From October 29·5 to November 4·5 the brightness of the star apparently remained constant. A comparison with M. Roy's observations of the 1906–7 maximum shows the period of fluctuation to be 318·5 days, some thirteen days shorter than it is given by Guthnick from the discussion of the observations made during the last three centuries; other observers of the recent changes place the maximum at dates varying from October 30 to November 9.

According to Chandler's computations, a maximum of Mira Cygni was due to take place on April 4·5. On March 9 and 26, respectively, M. de Roy estimated the magnitudes of this object to be 6·60 and 5·88 (*Gazette astronomique*, No. 4, March 31).

Sun-spot Observations.—In No. 4237 of the *Astronomische Nachrichten* (p. 205, March 6), Herr T. Epstein compares the results of his sun-spot observations made during the years 1905, 1906, and 1907. The figures for the half-years show that the maximum daily frequency took place in the second semester of 1905, and the yearly values indicate a steady decrease during 1906 and 1907. The ratio of the number of groups in the northern to the number in the southern hemisphere was almost reversed during 1907, for whereas in 1906 it was 1·55 : 1, in 1907 it was 1 : 1·28.

Meridian Circle Observations of Parallax Stars.—Lick Observatory Bulletin, No. 129, contains a list of forty-five stars which have been observed at the request of Dr. L. de Ball for use in his heliometer measures of parallax. The positions given are the results of 400 observations, made on twenty-five nights, by Prof. R. H. Tucker.

The Recent Total Solar Eclipse.—From a note in No. 1, vol. ii., of the Journal of the Royal Astronomical Society (Canada), we learn that the Lick Observatory eclipse party arrived back at Mount Hamilton on January 25. Rain fell during a part of the total phase, but some good photographs were obtained, for although the instruments were wet, they worked perfectly.

A New Expedition to the Southern Hemisphere.—With the object of extending Prof. Boss's fundamental catalogue work to the southern hemisphere, an expedition, under the direction of Prof. R. H. Tucker, of the Lick Observatory, is to be dispatched to either New Zealand, South America, or South Africa. The Carnegie Institution has offered to bear the expense of the proposed observatory, and it is expected that the work will take about three years to carry out. The large Pistor and Martins meridian circle of the Dudley Observatory (Albany, U.S.A.) will be employed for this work (Journal R.A.S., Canada, vol. ii., No. 1, p. 43).

The Hamburg Observatory.—Prof. Schorr's report of the Hamburg Observatory, for 1906, contains an account of the new buildings and instruments. The new observatory lies about 20 kilometres to the south-east of the present one, and is at an altitude of 40 metres above the Elbe. The buildings are in the shape of a **T**, and cover an area of 33,652 square metres. Among the new instruments is a Steinheil refractor of 60 cm. aperture and 9 m. focal length, to which is adapted a correcting lens for the purpose of photography, and a meridian circle of 19 cm. aperture and 2·3 m. focal length; the circles are of 74 cm. diameter, and are divided in 4′ intervals. Reports, in brief, of the 1905 and 1907 eclipse expeditions and of the variable-star observations and time-service are also given in the volume.

THE ZIEGLER POLAR EXPEDITION.[1]

In the introduction Mr. Fiala gives a somewhat scanty historical account of the expedition, a footnote referring the reader for details to his popular narrative "Fighting the Polar Ice." One gathers that the expedition was equipped by Mr. W. Ziegler, of New York—who died before its return—and that the vessel which conveyed the expedition to its objective, Franz Josef Land, in 1903 was lost, the party being eventually rescued in 1905.

Mr. Ziegler had the sagacity to leave the choice of a scientific leader to the National Geographic Society, and its selection of Mr. Peters seems justified by the results. Mr. Peters was himself to have prepared the scientific results for press, but shortly after his return to America he was appointed to the magnetic survey ship of the Carnegie Institution, and his duties as editor devolved on Mr. J. A. Fleming. The magnetic instruments, a unifilar magnetometer and a dip circle, were loaned by the U.S. Coast and Geodetic Survey, and a programme was prepared by Dr. L. A. Bauer. Meteorological instruments were lent by the U.S. Weather Bureau and the U.S. Signal Corps, and the completeness of the records obtained probably owes a good deal to the fact that one of the members of the expedition, Mr. Francis Long, was a trained observer of the U.S. Weather Bureau.

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[1] "The Ziegler Polar Expedition 1903–5," Anthony Fiala, Commander. Scientific Results obtained under the direction of William J. Peters. Edited by John A. Fleming. Pp vii+630; with maps. (Washington, D.C. Published under the auspices of the National Geographic Society, 1907.)